

SDSS-II First Year Review

Overview of Progress on SDSS-II

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SDSS-II observations run from 1 July 2005 through 30 June 2008.

There are three surveys: Legacy, SEGUE, and Supernova.

There are twenty-five participating institutions; funding comes from them + NSF + Sloan Foundation. Drexel University, Case Western Reserve University, and the University of Basel joined the project in later 2005.

Partners invested in Legacy, SEGUE, and Supernova

The University of Chicago

The Johns Hopkins University

The University of Washington

Princeton University

New Mexico State University

Japanese Participation Group

United States Naval Observatory

Fermi National Accelerator Laboratory

Max-Planck-Institute fuer Astrophysik, Garching

Los Alamos National Laboratory

Korean Scientist Group

Ohio State University

Large Area Multiple Object Survey Telescope (LAMOST) Project

Partner Invested in Legacy and SEGUE

Max-Planck-Institute fuer Astronomie, Heidelberg

Partners invested only in Legacy

University of Pittsburgh
Institute for Advanced Study
University of Portsmouth
Case Western Reserve University
Drexel University

Partners invested in SEGUE and Supernova

Cambridge University
American Museum of Natural History
Astrophysikalisches Institut, Potsdam
Joint Institute for Nuclear Astrophysics (Notre Dame)

Partner invested only in SEGUE

University of Basel

Partner invested only in Supernova

Kavli Institute for Particle Astrophysics and Cosmology (Stanford)

This presentation will review the progress on the three surveys in terms of data collected; the afternoon talks will cover science results so far.

In terms of operations, SDSS-II is based solidly on SDSS-I, but there is some development work needed for SEGUE and for Supernova. Progress on this front will be covered by W. Boroski.

The Working Group Chairs are:

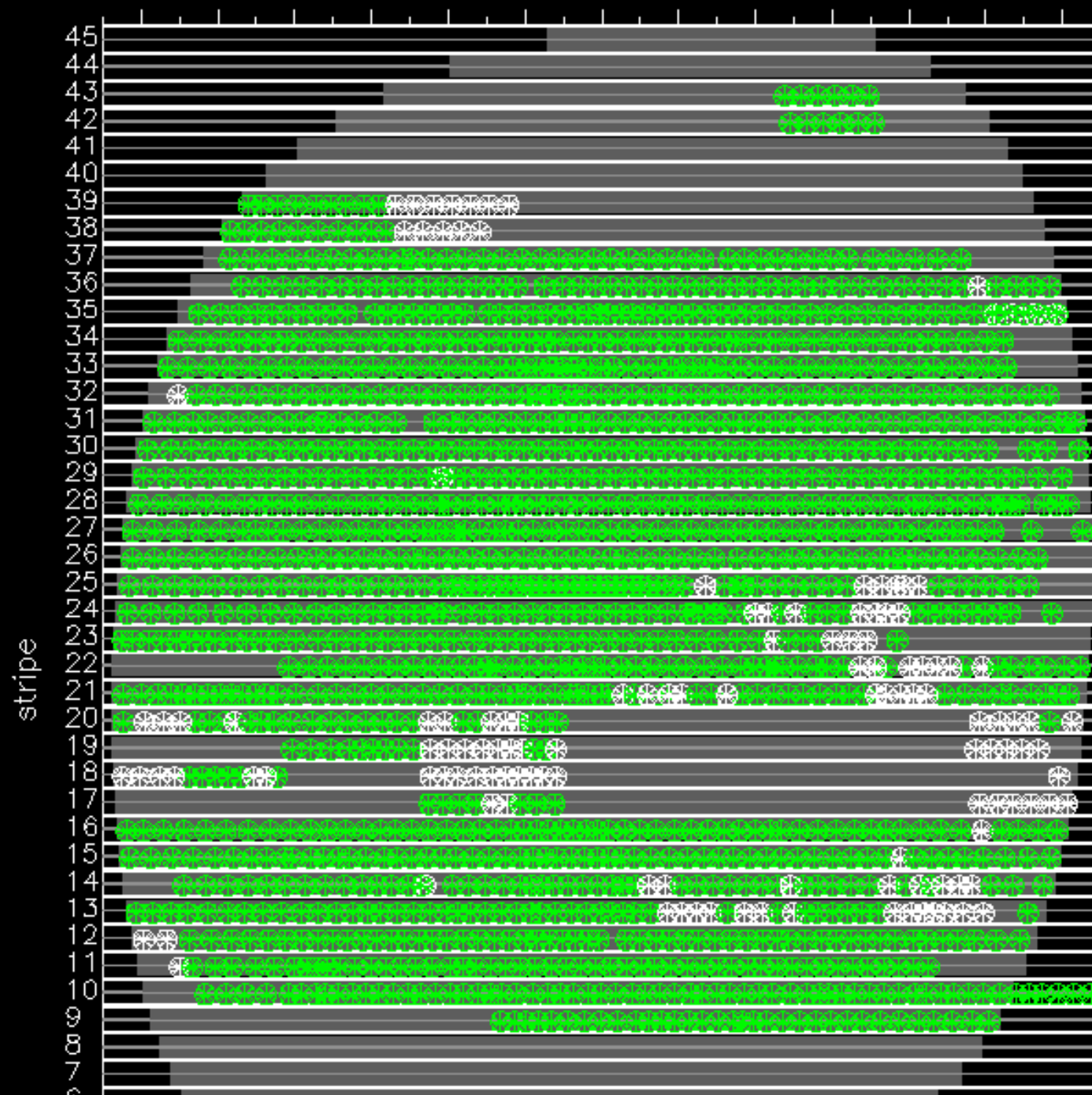
Quasars	Don Schneider
Large-Scale Structure	Daniel Eisenstein and Bob Nichol
Galaxies	Julianne Dalcanton and Eric Bell
Clusters	Mike Gladders
Stars	Heidi Newberg

The benchmarks for data acquisition are provided in Appendix A of the Project Execution Plan (PEP).

Data collected 1 July 2005 - 4 July 2006:

	planned	actual	what
Legacy imaging	166	143	sq. deg.
Legacy spectroscopy	211	234	plates
SEGUE imaging	1192	967	sq. deg.
SEGUE spectroscopy	56	42	plate pairs = tiles
Supernova	60	130	Ia's w/ spectra
	19	20	repeats of footprint

TILED CHUNK STATUS: 2006 Jul 11



The Legacy footprint has been finished in imaging, and we can now solve for the specific pattern of tiles. We will continue to scan or re-scan small portions of the North Galactic Cap as time permits.

Legacy spectroscopy is on track. How to proceed with the end-game has been reviewed by the Legacy Project Team Leaders and by the Large-Scale Structure Working Group Chairs. Advice goes to S. Kent who does the planning. We estimate that 320 Legacy plates remain to be observed.

(NB we obtained 234 Legacy plates in the first SDSS-II season, and we have two seasons to go.)

SEGUE had a substantial head-start due to data collected prior to 1 July 2005.

Cumulative imaging to date: 2271/ 3500 square degrees.

Cumulative spectroscopy to date: 73/200 tiles.

Supernova observed September through November 2005 and exceeded by far our expectations.

Financial Status

The following table gives the spending in major categories for the past four quarters (1 July 2005 through 30 June 2006), comparing the approved cash budget with actual cash expenses. (In-kind amounts to \$683K budgeted versus \$812K expended, as detailed in the quarterly reports.) Amounts are in \$K.

Category	budget	actual
Survey Management	392	320
Survey Operations		
Observing Systems	758	703
Observatory Operations	1624	1601
Data Processing	639	562
Data Distribution	247	218
ARC Support for Survey Ops	66	7
New Development		
SEGUE Development	195	128
Supernova Development	162	74
DA Upgrade	241	263
Photometric Calibration	36	39
ARC Corporate Support	62	63
Sub-total	4422	3978
Management Reserve	252	0
Total	4674	3978

Schedule

Data Release 5 was made public in late June. DR6 is on schedule for July 2007 - this will be the first public release of SDSS-II data.

We are a bit behind on completing the new SEGUE pipeline. Good progress is being made, and it will be completed well before it is required for DR6.

Progress in Addressing Panel Recommendations

The site-visit panel report (February 2005) for SDSS-II included a number of recommendations, all of which were endorsed by the NSF and three of which are incorporated into the Programmatic Terms and Conditions (PTC).

1. minimal acceptable outcome; survey priorities that enable this outcome to be achieved; metric of the window function; give Legacy highest priority

The issue here is that we did not describe how we would adjudicate between surveys that competed in the same time of year. We were unclear about giving Legacy highest priority.

Our response to this recommendation is PEP Sections 2.3 (Data Product Goals), 2.4 (Science Outcome Goals), 2.5 (Survey Priorities and Monitoring Survey Progress), and 2.6 (Achievable Metrics).

The window function exercise awaits the completion of the tiling solution, but we have tested the code to do it.

2. ensure that new data (SEGUE and SN) are available using standard data-distribution tools

Development work for SEGUE includes a new pipeline that generates atmospheric parameters. The data model for the Catalog Archive Server will be modified to incorporate these new parameters. SEGUE data will be accessible in the same way that all the other data are.

2. continued

The Supernova data from the 2004 and 2005 runs are available; we will make the user interface more effective. Many of the data are obtained in non-photometric conditions. The Supernova Project Team's solution to the calibration problem will be adopted for a release that will include the calibrated data.

Starting this Fall, we plan to have an immediately available public "alert" web page that will include all candidate transients that we think have a reasonable chance of being supernovae, similar to ESSENCE and SNLS. We will also send these candidates out by automatic emails using the new VOEventNet system.

3. develop a cohesive EPO program

We have hired Dr. Julie Lutz at 20%; she has extensive experience working with NASA EPO programs (e.g. Director NASA Space Science Network Northwest; Director NASA Regional Educator Resource Center). Details of future activities are outlined in the Q2 Quarterly Report, including workshops and presentations at AAS, AAPT, and ASP meetings. Her team has begun to overhaul sdss.org. She is promoting sdss.org/education , a new page that enables exchanges of information about EPO activities among the Collaboration. She is considering applying for a Research Experiences for Teachers grant that would connect teachers with SDSS data.

4. mechanism for annual reviews of SDSS-II convened by NSF that include review the above recommendations.

The mechanism is described in the PTC.

Additional Recommendations

5. increase network bandwidth from APO; relocate some operations (eg QA) off of the mountain

We now have a 15 Mb/sec link off of the mountain and are routinely using it to send all data to Fermilab. This has indeed resulted in some savings.

We do QA both on and off the mountain. Having a QA check close to the data acquisition helps us quickly identify and resolve problems.

6. given an adequate contingency, make a plan for the disposition of remaining funds as SDSS-II nears its end

Our plan and process is described in PEP Section 11 (Contingency Management).

Each year we fund "New Projects" using resources not deemed necessary for contingency. The projects and their spending limits for CY2006 are:

6. continued

Education and Public Outreach	\$82k
Additional software development	\$39k
Data distribution operations	\$60k
Additional Scientific and Engineering support	\$80k
Support for Collaboration activities	\$40k

New Projects for CY2007 will be requested of the Advisory Council in November; it is likely that the CY2007 categories will substantially overlap with the CY2006 ones.

7. explore the development of tools to aid in telescope scheduling

Survey Coordination is described in the PEP, Section 4.1.3. Steve Kent is the Head of Survey Coordination, and Stephanie Snedden (one of the Observers) is the Deputy Head. Prior to each dark run, a set of priorities for the upcoming run is transmitted by Steve to APO and to the co-leaders of the Project Teams and discussed via teleconference. The Observers are responsible for the detailed implementation of the general plan, based on actual conditions. Both Steve and the Observers are equipped with a suite of tools to aid in creating and executing the observing plan.

PLATE INVENTORY DATABASE

Version: V2_15

Access information

User:

APO Person

Password:

(make sure "caps lock" is off)

Routine Commands

- [Return to top](#)
- [Add new file designs from a file](#)
- [Add new plate designs from a file](#)
- [Take Delivery of Plates](#)
- [Mark Plates](#)
- [New 6-way profilometry](#)
- [Enter New Plate Map](#)
- [End of night - enter observing log](#)
- [Plan a day's plugging activities](#)
- [Plan a night's observing](#)
- [End of Run - Unplug Cartridges](#)
- [Store Plates in Alamogordo](#)
- [Retrieve Plates from Alamogordo](#)
- [Plate status/verify \(report file format\)](#)
- [Tiles Available \(report format\)](#)
- [Plates available \(report file format\)](#)
- [All files](#)
- [All plates](#)

Utility Commands

- [Reset Connection](#)
- [Query for file/plate info](#)
- [Zip an unpluggable plate](#)
- [Latest database updates](#)
- [Fermilab target selection/plate design page](#)
- [sdss-plate mailing list](#)
- [sdss-plug mailing list](#)

New MJD:

Submit Query

Almanac for MJD: 53915

2006-Jun-28 / 2006-Jun-29

Event	UT	UT
Sunset	02:15	02:15
Evening twilight (-18 deg)	03:55	03:55
Moonset	04:51	04:51
Moon phase	first	
Morning twilight (-18 deg)	10:20	10:20
Sunrise	12:01	12:01
Sidereal Time at Eve. Twi.	15:23	(=231°)
Sidereal Time at Midnight	17:28	(=262°)
Sidereal Time at Morn. Twi.	21:48	(=327°)

Color key

- Twilight
- Moon up
- Regular plate available
- Regular plate available with moon
- X Nominal observing time
- Lower priority plate available
- Lower priority plate available with moon
- Special plate available
- Special plate available with moon
- Zenith avoidance
- Plate is on cartridge

Visibility

		UT															
Cartridge	Plate	Status or S/N	Smear?	Priority	Expires	Moon	2	3	4	5	6	7	8	9	10	11	12
1	2532	10		3	16 Jul 2006	0						X					
2	2162			3	15 Jul 2006	0					X						
3	2537			4	16 Jul 2006	0											
4	1816			3	30 Jun 2006	0					X						
5	2172			3	15 Jul 2006	0						X					
6	2303			2	17 Jul 2006	0											
8	2305			2	15 Jul 2006	0											
9	2253			2	15 Jul 2006	0						X					

Visibility

Plate	Priority	tileRun	Moon	UT												Tile	
				2	3	4	5	6	7	8	9	10	11	12			
2537	4	segue146	0														8207
1725	3	chunk87	0														1209
1715	3	chunk87	0														1225
1807	3	chunk94	0.0														1319
1814	3	chunk94	0														1325
1816	3	chunk94	0														1327
1818	3	chunk94	0														1329
1819	3	chunk94	0														1330
1820	3	chunk94	0														1331
1808	3	chunk94	0.0														1344
1830	3	chunk94	0														1351
1831	3	chunk94	0														1352
1832	3	chunk94	0														1353
1833	3	chunk94	0														1354
1834	3	chunk94	0														1355
1835	3	chunk94	0														1356

8. organize training workshops at AAS meetings for accessing SDSS data

We tried two kinds of interactions at the Calgary AAS meeting, led by Jordan Raddick: a "room" presentation (15-20 people), and six or seven tailored demos at the SDSS exhibition booth (roughly three people at a time). These were quite successful, and we intend to expand these events at the Seattle AAS meeting. We are considering having two room sessions, one aimed at sophisticated users to answer their questions and demonstrate specific aspects of the data-access tools, and another that is aimed at novice users. At the exhibit booth we may also alternate between introductory demos and advanced demos.

9. solicit expressions of interest from the general astronomical public to strengthen the teams.

We routinely appoint individuals as "External Collaborators" for specific projects. They become part of the team (science, not operations) and have publication and other rights for that project. The notion is to foster a broad network of collaborations and thus strengthen the SDSS science; this mechanism has worked very well.

The process involves a statement of intended work and requires an internal scientist to describe how the collaboration would bring in new resources (e.g. expertise, code, observing time). All of this is reviewed by the Collaboration Council. Candidates may come to us, or we may go to them. The process is described on sdss.org.

External collaborators approved since November 2005

- Carbon-enhanced stars: Sara Lucatello (Padova), Silvia Rossi (Sao Paulo), Wako Aoki (NAOJ)
- LSB galaxies and large galaxies: Andrew West (Berkeley)
- M dwarfs: Andrew West (Berkeley)
- Lya forest: Pat McDonald (CITA)
- Astrometry: Suzanne Taylor (UNM), John McGraw (UNM)
- White dwarf/main sequence pairs: Matthias Schreiber (Valparaiso)
- Quasar-absorber pairs: Jason Prochaska (Santa Cruz))
- Magnetic white dwarfs: Gary Schmidt (Arizona)
- SEGUE calibration: Carlos Allende Prieto (Texas), Ron Wilhelm (Texas Tech), John Norris (ANU)
- Dwarf satellite follow-up: Jan Kleyna (Hawaii)
- Moving object searches: Andrew Connolly (U. Pitt.), Jeremy Kubika (CMU)
- K-giant survey: Heather Morrison (Case) + Case undergraduates
- Globular cluster photometry: James Clem (LSU)
- White dwarf modeling: Patrick Dufour (Montreal), Pierre Bergeron (Montreal)